

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2002	
BUDGET ACTIVITY 07 - Operational System Development				PE NUMBER AND TITLE 0702207F Depot Maintenance (Non-IF)				PROJECT 3326	
COST (\$ in Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
3326 Precision Measurement & Calibration	3,336	2,719	1,340	1,433	1,457	1,439	1,464	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0

(U) **A. Mission Description**
This program develops, tests, and evaluates national and Air Force measurement standards (hardware) and calibration equipment in support of all Air Force programs and activities, including Precision Measurement Equipment Laboratories (PMELs) worldwide. Metrology research and development provides technology to support systems in all phases of development and acquisition, as well as Air Force R&D laboratories, test ranges, ground test facilities, and operational weapons systems support. Rapidly changing technology requires continuing research and development of measurement standards and calibration equipment to ensure modern weapon systems meet Air Force readiness objectives. This program addresses all metrology disciplines and includes the technology areas of laser, infrared, microwave, millimeter wave, optical, physical, mechanical, electrical, electronic, and ionizing radiation measurements. Metrology is a technical discipline devoted to the science of measurements and to the study and improvement of measurement technology. Measurements are the foundation of military system development, quality assurance, hardware conformance testing and system readiness tests. The integrity of these tests is assured through calibration and traceability assurance schemes. The capability to measure and calibrate must parallel the emergence of new technology, new ranges, and new capabilities of military systems. Lack of new measurement capability impedes or blocks the successful exploitation of new technologies, especially in the movement from development laboratory to production to deployment. R&D efforts are essential within the DoD to pace these requirements, otherwise, these same new systems will suffer time delays, excessive cost, and increased risk due to unreliable test results in all phases of development, production, deployment and operation.

(U) **FY 2001 (\$ in Thousands)**

(U) \$1,400 Complete the avalanche photodiode improvement and tunable laser projects; and continue development of national measurement standards to support Air Force infrared / laser / electro-optical weapon systems and support equipment.

(U) \$900 Continue development of standards for radar support, RF communications systems, and radar cross-section range measurements.

(U) \$250 Complete development of improved calibration support for coordinate measuring machines (CMMs), and continue development of standards to support physical, mechanical and electro-mechanical support equipment.

(U) \$486 Complete the frequency response characteristics of capacitors and the next generation sampling comparator probe projects; and continue development of standards for electrical measurements to support high accuracy electronic test equipment.

(U) \$150 Complete the large area beta source project and continue the development of national standards for calibration of ionizing radiation hazard

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07 - Operational System Development	0702207F Depot Maintenance (Non-IF)	3326
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2001 (\$ in Thousands) Continued</u></p> <p>instrumentation.</p> <p>(U) \$150 Begin development of improved standards and procedures to support hydrazine detector calibrations.</p> <p>(U) \$3,336 Total</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u></p> <p>(U) \$1,100 Complete the target simulator radiometer; and continue development of national measurement standards to support Air Force infrared / laser / electro-optical weapon systems and support equipment.</p> <p>(U) \$800 Complete the full scale co-conical chamber; and continue development of standards for radar support, RF communications systems, and radar cross-section range measurements.</p> <p>(U) \$160 Complete the low gas flow MAP; and continue the development of improved calibration standards to support physical, mechanical and electro-mechanical support equipment.</p> <p>(U) \$500 Complete the Hall effect resistance standard project, and the improved thin film multi junction thermoconverter project; and continue development of standards for electrical measurements to support high accuracy electronic test equipment.</p> <p>(U) \$59 Complete the low level dosimetry traceability project and continue the development of national standards for calibration of ionizing radiation hazard instrumentation.</p> <p>(U) \$100 Continue development of improved standards and procedures to support hydrazine detector calibrations.</p> <p>(U) \$2,719 Total</p> <p>(U) <u>FY 2003 (\$ in Thousands)</u></p> <p>(U) \$560 Complete the spectral radiance/irradiance measurement capability and the angle/temperature dependence of emittance projects; and continue development of national measurement standards to support Air Force infrared / laser / electro-optical weapon systems and support equipment.</p> <p>(U) \$350 Continue development of standards for radar support, RF communication systems, and radar cross-section range measurements.</p> <p>(U) \$130 Complete the windtunnel modification and characterization project; and continue the development of improved calibration standards to support physical, mechanical and electro-mechanical support equipment.</p> <p>(U) \$200 Continue development of standards for electrical measurements to support high accuracy electronic test equipment.</p> <p>(U) \$40 Continue the development of national standards for calibration of ionizing radiation hazard instrumentation.</p> <p>(U) \$60 Complete development of improved standards and procedures to support hydrazine detector calibrations.</p> <p>(U) \$1,340 Total</p>		
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<p>(U) <u>B. Budget Activity Justification</u> This program is in budget activity 7 - Operational System Development because it supports operational systems.</p> <p>(U) <u>C. Program Change Summary (\$ in Thousands)</u></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;"></th> <th style="width: 10%; text-align: center;"><u>FY 2001</u></th> <th style="width: 10%; text-align: center;"><u>FY 2002</u></th> <th style="width: 10%; text-align: center;"><u>FY 2003</u></th> <th style="width: 20%; text-align: center;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget</td> <td style="text-align: center;">1,515</td> <td style="text-align: center;">1,533</td> <td style="text-align: center;">1,569</td> <td style="text-align: center;">TBD</td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: center;">3,515</td> <td style="text-align: center;">1,542</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> a. 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Other Program Funding Summary (\$ in Thousands)</u></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;"></th> <th style="width: 10%; text-align: center;"><u>FY 2001</u></th> <th style="width: 10%; text-align: center;"><u>FY 2002</u></th> <th style="width: 10%; text-align: center;"><u>FY 2003</u></th> <th style="width: 10%; text-align: center;"><u>FY 2004</u></th> <th style="width: 10%; text-align: center;"><u>FY 2005</u></th> <th style="width: 10%; text-align: center;"><u>FY 2006</u></th> <th style="width: 10%; text-align: center;"><u>FY 2007</u></th> <th style="width: 10%; text-align: center;"><u>Cost to</u></th> <th style="width: 15%; text-align: center;"><u>Total Cost</u></th> </tr> <tr> <th></th> <th style="text-align: center;"><u>Actual</u></th> <th style="text-align: center;"><u>Estimate</u></th> <th style="text-align: center;"><u>Estimate</u></th> <th style="text-align: center;"><u>Estimate</u></th> <th style="text-align: center;"><u>Estimate</u></th> <th style="text-align: center;"><u>Estimate</u></th> <th style="text-align: center;"><u>Estimate</u></th> <th style="text-align: center;"><u>Complete</u></th> <th></th> </tr> </thead> <tbody> <tr> <td>(U) AF RDT&E</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Other APPN</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>(U) <u>E. Acquisition Strategy</u> Primarily accomplish through intergovernmental transfer between the Department of Defense and other Federal Departments.</p> <p>(U) <u>F. Schedule Profile</u></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;"></th> <th style="width: 20%; text-align: center;"><u>FY 2001</u></th> <th style="width: 20%; text-align: center;"><u>FY 2002</u></th> <th style="width: 10%; text-align: center;"><u>FY 2003</u></th> </tr> </thead> <tbody> <tr> <td>Project 3326</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>										<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Total Cost</u>	(U) Previous President's Budget	1,515	1,533	1,569	TBD	(U) Appropriated Value	3,515	1,542			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions		1,200			b. Small Business Innovative Research					c. Omnibus or Other Above Threshold Reprogram					d. Below Threshold Reprogram					e. 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(U) <u>F. Schedule Profile Continued</u>															
				<u>FY 2001</u>				<u>FY 2002</u>				<u>FY 2003</u>			
				1	2	3	4	1	2	3	4	1	2	3	4
(U) N/A															

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002			
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT		
07 - Operational System Development				0702207F Depot Maintenance (Non-IF)				3326		
(U) <u>A. Project Cost Breakdown (\$ in Thousands)</u>										
						<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>
(U)	Quality Assurance (Develop Measurement Standards & Calibration Support)					3,316		2,699		1,315
(U)	Travel					20		20		25
(U)	Total					3,336		2,719		1,340
(U) <u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u>										
(U) <u>Performing Organizations:</u>										
<u>Contractor or</u>		<u>Contract</u>								
<u>Government</u>		<u>Method/Type</u>		<u>Award or</u>	<u>Performing</u>	<u>Project</u>				
<u>Performing</u>		<u>or Funding</u>		<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>
<u>Activity</u>		<u>Vehicle</u>		<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>
<u>Product Development Organizations</u>									<u>Budget to</u>	<u>Total</u>
									<u>Complete</u>	<u>Program</u>
National Institute of Standards & Technology		MIPR (DD FORM 448)		Varies	TBD	TBD	14,980	3,146	2,589	1,225
Department of Energy		MIPR (DD FORM 448)		Varies	TBD	TBD	59	170	110	90
Technical Support Contracts		Various		Varies	TBD	TBD				Continuing
AFMC		In House		Varies	TBD	TBD	173	20	20	25
<u>Support and Management Organizations</u>										
<u>Test and Evaluation Organizations</u>										
(U) <u>Government Furnished Property:</u>										
<u>Contract</u>		<u>Method/Type</u>		<u>Award or</u>	<u>Delivery</u>					
<u>Item</u>		<u>or Funding</u>		<u>Obligation</u>	<u>Date</u>		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>
<u>Description</u>		<u>Vehicle</u>		<u>Date</u>			<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>
<u>Product Development Property</u>									<u>Budget to</u>	<u>Total</u>
<u>Support and Management Property</u>									<u>Complete</u>	<u>Program</u>
<u>Test and Evaluation Property</u>										
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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE February 2002	
BUDGET ACTIVITY		PE NUMBER AND TITLE				PROJECT
07 - Operational System Development		0702207F Depot Maintenance (Non-IF)				3326
		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
		<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>
						<u>Program</u>
<u>Subtotals</u>						
Subtotal Product Development		15,212	3,336	2,719	1,340	TBD
Subtotal Support and Management						
Subtotal Test and Evaluation						
Total Project		15,212	3,336	2,719	1,340	TBD

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